

UNITED STATES PATENT OFFICE.

LAURENCE MYERS, OF PHILADELPHIA, PENNSYLVANIA.

UNDERGROUND CABLE FOR STREET-CAR PROPULSION.

SPECIFICATION forming part of Letters Patent No. 265,273, dated October 3, 1882.

Application filed December 19, 1881. (No model.)

To all whom it may concern:

Be it known that I, LAURENCE MYERS, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Underground Cables for Street-Car Propulsion, of which the following is a specification.

My invention relates to underground cables adapted to propel street-cars; and it consists in means whereby two of said cables may cross each other without interfering with the propulsion of the cars; further, in a double cable connected together by cross-pieces forming spaces equivalent to links, and in many details of construction, which are fully set forth in the following specification and shown in the accompanying drawings, which form part thereof.

In the drawings, Figure 1 is a plan view of a crossing, with the top broken away, embodying in it my invention. Fig. 2 is a sectional elevation of same on line *x x*. Fig. 3 is a perspective view of the two crossing-cables and the means by which a car is enabled to cross a cable without interruption. Fig. 4 is a sectional plan view of my method of turning a corner with the double cable, and Fig. 5 is a cross-section of same.

A are the ordinary tubes or conduits, in which the cables B are constantly traveling, being guided by rollers D; and E are the top plates or covers between which the longitudinal slot *e* is formed. At a crossing the tubes or conduits A open into each other, as shown in Fig. 1, and one cable is slightly depressed to pass below the other, as shown in Fig. 2. The cables I prefer to use I make of two longitudinal wire cables, B', connected together every few inches by cross-bars *b*, woven into said cables, or otherwise secured, and these cables run upon idler-wheels D, which are provided on the sides with guiding-flanges *d*, and in the center with an annular groove, *d'*. Upon each side of the cables B, and secured rigidly to the tubes A at the crossing, are inclined guideways C, said guideways leaving a \dagger -opening immediately over the place of crossing of the two cables B, and at this point the guideways are widened, so as to make the tracks as near a continuous track as possible. These guideways C begin below the cables and extend some distance above

them at the point of crossing, and then are curved down again below the cables on the other side. This is clearly shown in Figs. 2 and 3.

The street-car tracks F are arranged upon either side of the conduits A, and the cars G are provided with a sliding rod or bar, H, which is guided by a support, I, secured to the car, and prevented from descending below a given point by a pin, *i*, or other equivalent device, as a collar or enlargement. This rod H carries on the bottom a roller, J, to prevent it catching on projections and insure its being easily moved. Near the bottom, and rigidly secured to the rod H, is a casting, K, carrying upon either side a friction-wheel, L, which is adapted to run upon a guideway, C, when passing over a crossing to move the end of the bar H out of contact with either of the cables. In going around a corner the cable lies upon the flanges of vertical guide-wheels arranged upon either side of it, as shown in Figs. 4 and 5.

If desired, single wire or other cables may be used in place of my improved double cable, as my invention is adapted to all kinds of cables.

In the bottom of the conduits A, I place pipes M, through which I pass hot air or gas to thaw out any frozen slush or snow or ice which may have been formed in it during the winter.

The operation of my improvements is as follows: A car upon either track has its bar or rod H down, so that the end extends through the cable B and between the side strands and any two cross-bars, and is being propelled by the moving cable. When it reaches the crossing the friction-rollers L run upon guideways C and lift the end of the bar or rod H out of the cable and clear of both cables at the point of crossing. The momentum of the car carries it sufficiently far to allow the bar H to descend through the agency of the other or descending guideway C, and causes it to enter the cable again and continue the propulsion of the car. If the bar H should descend upon one of the cross-bars *b*, the roller J on its end causes it to slip off between the next two cross-bars. By this means the device works automatically to enable a car to cross another cable, and overcomes one of the greatest objections heretofore raised against underground cables as propellers for cars.